

## CLAIMS

What is claimed is:

1. A unitized pinion seal for mounting between a first member and a second member rotatable relative to the first member, the unitized pinion seal comprising:

5 a sleeve portion adapted to mount rotationally fixed to the first member;  
and

a seal portion mounted to the sleeve portion in a radial interference fit and adapted to mount to the second member.

2. The unitized pinion seal of claim 1 wherein the first member is an axle companion flange and the second member is a carrier/bearing cage.

3. The unitized pinion seal of claim 1 wherein the sleeve portion is adapted to install to the first member with a radial interference fit such that the radial interference fit of the seal portion to the sleeve portion creates a greater axial retention load than an axial installation load created by the interference fit of the sleeve portion relative to the first member.

4. The unitized pinion seal of claim 1 wherein said seal portion includes a retainer mechanism engaging said sleeve member prior to assembly of said unitized pinion seal to said first member.

5. The unitized pinion seal of claim 4, wherein said retainer mechanism includes a first retainer ring engaging a seal body and a second retainer ring engaging said sleeve portion prior to assembly of said unitized pinion seal to said first member.

6. A method of installing a pinion seal to a carrier/bearing cage and an axle companion flange, the method comprising the steps of:

25 assembling a sleeve portion of the pinion seal to a seal portion of the pinion seal with a radial interference fit;

assembling the pinion seal to the carrier/bearing cage;

30 partially installing the axle companion flange into the sleeve portion while generating less axial installation force between the axle companion flange and the sleeve portion than an axial retention load created by the interference fit between the seal portion and the sleeve portion; and

further installing the axle companion flange into the sleeve portion while preventing further axial movement of the sleeve portion relative to the companion flange,

to thereby overcome the axial retention load and move the sleeve portion axially relative to the seal portion.